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**DEPARTMENT OF THE INTERIOR**

**Fish and Wildlife Service**

**50 CFR Part 17**

**RIN 1018-AB42**

**Endangered and Threatened Wildlife and Plants; Determination of Endangered Status for *Cyanea superba*, an Hawaiian Plant**

**AGENCY:** Fish and Wildlife Service, Interior.

**ACTION:** Final rule.

**SUMMARY:** The U.S. Fish and Wildlife Service (Service) determines a plant, *Cyanea superba* (no common name), to be endangered pursuant to the Endangered Species Act of 1973, as amended (Act). This plant is known only from two small populations located on the island of Oahu, Hawaii. Both populations are vulnerable to any substantial habitat alteration and face clear and present threats from fire, feral pigs, and aggressive, exotic plant infestations on and near the sites where they occur. This rule implements the protection and recovery provisions afforded by the Act for this plant.

**EFFECTIVE DATE:** October 11, 1991.

**ADDRESSES:** The complete file for this rule is available for public inspection, by appointment, during normal business hours at the U.S. Fish and Wildlife Service, 300 Ala Moana Boulevard, room 607, Honolulu, Hawaii 96813.

**FOR FURTHER INFORMATION CONTACT:** Derral R. Herbst at the above address (808/541-2749 or FTS 551-2749).

**SUPPLEMENTARY INFORMATION:**

**Background**

*Cyanea superba* was first collected on Oahu in 1817 by Adelbert Chamisso, botanist with the Romanzoff Expedition, and was placed by him in the genus *Lobelia* (Chamisso 1833). No information on the collecting locality was given other than the island. Asa Gray (1861) later transferred the species to the endemic genus *Cyanea*. Dr. Hillebrand

collected the species prior to 1870 in the "Gulches of Makaleha on Mt. Kaala," Waianae Mountains, Oahu. He collected it again in 1870, and there were no further documented sightings of the taxon until its rediscovery in the Waianae Mountains in 1971. Presently it is known from 2 small populations totaling fewer than 20 individual plants. A recently reported third population appears to be based on a misidentification (Hawaii National Area Reserves System 1988; John Obata and Steven Perlman, Hawaii Plant Conservation Center, and David Smith, Hawaii Division of Forestry and Wildlife, pers. comms., 1990).

A second subspecies (eventually named *Cyanea superba* subsp. *regina*) was discovered on the lower slopes of the Niu and Wailupe Valleys in the Koolau Mountains, Oahu, by William Hillebrand, Dr. Hillebrand's son, and J.M. Lydgate sometime prior to 1871. The vegetation of this area has since been destroyed by grazing cattle, and the subspecies has not been collected since 1932.

*Cyanea superba* is a perennial plant in the bellflower family (Campanulaceae) and is geographically isolated and morphologically very different from its closest relatives. It grows to 6 meters (m) (20 feet (ft)) tall, and has a terminal rosette of large leaves each 50 to 100 centimeters (cm) long and 10 to 20 cm wide (20 to 40 inches (in) by 4 to 8 in) atop a simple, unbranched trunk. Its numerous white or creamish flowers are in pendent inflorescences hanging 20 to 35 cm (8 to 14 in) below the leaves (Lammers 1990).

*Cyanea superba* grows in the understory on sloping terrain on a well drained, rocky substrate between 535 and 700 m (1,760 and 2,200 ft) in elevation. The understory is heavily shaded by canopy species including *Aleurites moluccana* (kukui) and *Pisonia brunoniana* (papala kepau), but is open. The open, shaded understory provides an environment conducive to invasion by aggressive exotic species (Obata and Smith 1981). One population is on State land in Pahole Gulch, while the other grows on Federal property in Kahanahaiki Valley, Waianae Mountains, Oahu, Hawaii.

Probably the greatest immediate threat to the survival of this species is the degradation of its habitat due to the introduction of alien plants and animals. The potential of destruction by wildfires generated in a nearby military firing range and damage directly to the plants and their habitat by feral pigs also are major threats. The plants are confined to 2 small areas of 167 and 56 square (sq) m (1,800 and 600 sq ft). The restricted

range of this plant makes it vulnerable to even small, local, environmental disturbances, and a single incident could destroy a significant percentage of the known individuals. Additionally, the limited gene pool may depress reproductive vigor.

Federal action on this species began as a result of section 12 of the Act, which directed the Secretary of the Smithsonian Institution to prepare a report on plants considered to be endangered, threatened, or extinct in the United States. This report, designated as House Document No. 94-51, was presented to Congress on January 9, 1975. In that document, *Cyanea superba* was considered to be endangered. On July 1, 1975, the Service published a notice in the **Federal Register** (40 FR 27823) of its acceptance of the Smithsonian report as a petition within the context of section 4(c)(2) (now section 4(b)(3)) of the Act, and giving notice of its intention to review the status of the plant taxa named therein. As a result of that review, on June 16, 1976, the Service published a proposed rule in the **Federal Register** (41 FR 24523) to determine endangered status pursuant to section 4 of the Act for approximately 1,700 vascular plant species, including *Cyanea superba*. The list of 1,700 plant taxa was assembled on the basis of comments and data received by the Smithsonian Institution and the Service in response to House Document No. 94-51 and the July 1, 1975, **Federal Register** publication.

General comments received in relation to the 1976 proposal are summarized in an April 26, 1978, **Federal Register** publication (43 FR 17909). In 1978, amendments to the Act required that all proposals over 2 years old be withdrawn. A 1-year grace period was given to proposals already over 2 years old. On December 10, 1979, the Service published a notice in the **Federal Register** (44 FR 70796) withdrawing the portion of the June 16, 1976, proposal that had not been made final, along with four other proposals that had expired. The Service published updated notices of review for plants on December 15, 1980 (45 FR 82479), September 27, 1985 (50 FR 39525), and February 20, 1990 (55 FR 6183). In these notices, *Cyanea superba* was treated as a Category 1 Candidate for Federal listing. Category 1 taxa are those for which the Service has on file substantial information on biological vulnerability and threats to support preparation of listing proposals.

Section 4(b)(3)(B) of the Act requires the Secretary to make findings on certain pending petitions within 12 months of their receipt. Section 2(b)(1) of the 1982 amendments further requires

that all petitions pending on October 13, 1982, be treated as having been newly submitted on that date. On October 13, 1983, the Service found that the petitioned listing of these species was warranted, but precluded by other pending listing actions, in accordance with section 4(b)(3)(B)(iii) of the Act; notification of this finding was published on January 20, 1984 (49 FR 2485). Such a finding requires the petition to be recycled, pursuant to section 4(b)(3)(C)(i) of the Act. The finding was reviewed in October of 1984, 1985, 1986, 1987, 1988, and 1989. On July 17, 1990, the Service published in the **Federal Register** (55 FR 29072) a proposal to list *Cyanea superba* as endangered. This proposal was based primarily on a status survey by John Obata (Obata and Smith 1981), information supplied by the Hawaii Heritage Program (1989), the Hawaii Natural Area Reserves System (1988) report, and the observations of botanists and naturalists. The Service now determines *Cyanea superba* to be an endangered species with the publication of this rule.

#### Summary of Comments and Recommendations

In the July 17, 1990, proposed rule and associated notifications, all interested parties were requested to submit factual reports or information that might contribute to the final listing decision. The public comment period ended on September 17, 1990. Appropriate State agencies, county and city governments, Federal agencies, scientific organizations, and other interested parties were contacted and requested to comment. A newspaper notice was published in the *The Honolulu Advertiser* on August 1, 1990, which invited general public comment. No comments were received.

#### Summary of Factors Affecting the Species

After a thorough review and consideration of all information available, the Service has determined that *Cyanea superba* should be classified as an endangered species. Procedures found at section 4 of the Endangered Species Act (16 U.S.C. 1533) and regulations (50 CFR part 424) promulgated to implement the listing provisions of the Act were followed. A species may be determined to be an endangered or threatened species due to one or more of the five factors described in section 4(a)(1). These factors and their application to *Cyanea superba* (Cham.) A. Gray (no common name) are as follows:

**A. The present or threatened destruction, modification, or curtailment of its habitat or range.** *Cyanea superba* is currently known from 2 small populations comprising less than 20 plants and covering a total of 223 sq m (2,400 sq ft) in the county of Honolulu, island of Oahu, Hawaii. Its previous range is unknown due to inadequate information by early collectors. The restricted range of the species makes it vulnerable to habitat alteration. Wildfires, feral pig activity, and aggressive exotic weed invasions all threaten its continued existence (Obata and Smith 1981). Fresh "ground rooting" by pigs was noted around the *C. superba* plants at both populations in March and April, 1990 (D. Smith, pers. comm., 1990). Furthermore, pigs were seen among the *C. superba* plants at the Kahanahaiki population in April, 1990, and just below the Pahole population in March, 1990 (D. Smith, pers. comm., 1990). While both populations have since been fenced (D. Smith, pers. comm., 1990), such protection may not exclude pigs completely. In this species' steep habitat, erosion caused by the ground-disturbing activities of feral pigs or humans is a potential threat (D. Smith, pers. comm., 1990). In addition, partially fallen trees directly upslope of the Kahanahaiki population as of April, 1990, threatened to fall or slide onto the population (D. Smith, pers. comm., 1990). Crowding by exotics occurs principally from invasion by *Psidium cattleianum* (strawberry guava) and *Schinus terebinthifolius* (Christmas berry) (Obata and Smith 1981). Fire spreading from the adjacent Makua artillery range impact area could potentially threaten this species.

**B. Overutilization for commercial, recreational, scientific, or educational purposes.** Not known to be a factor, but unrestricted scientific collecting or excessive visits resulting from increased publicity could seriously affect the species. Human-caused erosion on the steep slopes is a particular concern (D. Smith, pers. comm., 1990). Also pigs are likely to follow human trails to the population (D. Smith, pers. comm., 1990).

**C. Disease or predation.** Due to its extreme rarity, little is known about this species or its predators. No obvious damage by disease or pests is evident. Uprooting and possible consumption by feral pigs is a threat to these two very small colonies, despite their having been fenced recently. Pigs may have been responsible for knocking over one *Cyanea* plant in April, 1990 (D. Smith, pers. comm., 1990). The type description of the species mentions damage to the

flowers by unknown insect larvae (Obata and Smith 1981).

**D. The inadequacy of existing regulatory mechanisms.** One population of species is found within a State forest reserve. State regulations prohibit the removal, destruction, or damage of plants found on these lands. However, the regulations are difficult to enforce because of limited personnel. Hawaii's Endangered Species Act (HRS, sect. 195D-4(a)) states, "Any species of aquatic life, wildlife, or land plant that has been determined to be an endangered species pursuant to the Endangered Species Act [of 1973] shall be deemed to be an endangered species under the provisions of this chapter \* \* \*." Further, the State may enter into agreements with Federal agencies to administer and manage any area required for the conservation, management, enhancement, or protection of endangered species (HRS, sect. 195D-5(c)). Funds for these activities could be made available under section 6 of the Federal Act (State Cooperative Agreements). Listing of this plant will therefore reinforce and supplement the protection available to the species under State law. The Federal Act also will offer additional protection to the species, because it is a violation of the Act for any person to remove, cut, dig up, damage, or destroy an endangered plant in an area not under Federal jurisdiction in knowing violation of State law or regulation or in the course of any violation of a State criminal trespass law.

**E. Other natural or manmade factors affecting its continued existence.** The extremely small size of the populations increases the potential for extinction from stochastic events. The limited gene pool may depress reproductive vigor, or a single natural or man-caused environmental disturbance could destroy a significant percentage of the known extant individual plants. Over the past 12 years, the Pahole population declined sharply from 50 to as few as 10 individuals (Hawaii Heritage Program 1989; D. Smith, pers. comm., 1990). When last surveyed in April, 1990, 12 plants were counted (Patricia Welton, University of Hawaii, pers. comm., 1990). While the Kahanahaiki population has fluctuated between 7 and 19 individuals over the past 14 years, only 6 plants were seen when it was surveyed in November, 1990 (Hawaii Heritage Program 1989; J. Obata, S. Perlman, and D. Smith, pers. comms., 1990). Furthermore, the population structure at Kahanahaiki [all plants are over 6 ft. tall] indicates that successful

regeneration is not taking place (D. Smith, pers. comm., 1990).

The Service has carefully assessed the best scientific and commercial information available regarding the past, present, and future threats faced by this species in determining to make this rule final. Based on this evaluation, the preferred action is to list *Cyanea superba* as endangered. Only 2 populations with a total of less than 20 individuals remain in the wild, and these face threats of fires, pig damage, competition from non-native plants, and general habitat degradation. Because this species is in danger of extinction throughout all or a significant portion of its range, it fits the definition of endangered as defined in the Act. Critical habitat is not being designated for this species for reasons discussed in the "Critical Habitat" section of this rule.

#### Critical Habitat

Section 4(a)(3) of the Act, as amended, requires that to the maximum extent prudent and determinable, the Secretary designate critical habitat at the time a species is determined to be endangered or threatened. The Service finds that designation of critical habitat is not presently prudent for this species. Such a determination would result in no known benefit to the species. The publication of descriptions and maps required when critical habitat is designated would increase the degree of threat to this species from possible take or vandalism and, therefore, could contribute to their decline and increase enforcement problems. The listing of species as either endangered or threatened publicizes the rarity of the plants and, thus, can make these plants attractive to researchers, curiosity seekers, or collectors of rare plants.

All involved parties and major landowners have been notified of the general location and importance of protecting the habitat of these species. Protection of the species' habitat will be addressed through the recovery process and through the section 7 consultation process. The only known Federal activity within the current known habitat of these plants involves the use of portions of the Makua Military Reservation as a buffer zone adjacent to impact areas used as ordnance training sites by the U.S. Army. Firebreaks have been constructed between the impact area and the buffer zone to minimize potential impacts from any fires that may be generated during the ordnance training exercises (Herve Messier, U.S. Army, Ft. Shafter, Hawaii, pers. comm., 1990).

As mentioned in factor B in "Summary of Factors Affecting the Species," the plants grow on steep slopes and visits to the area by individuals could result in severe erosion problems, an additional threat to the species. Therefore, the Service finds that designation of critical habitat for this species is not prudent at this time, because such designation would increase the degree of threat from vandalism, collecting, or other human activities and because it is unlikely to aid in the conservation of this species.

#### Available Conservation Measures

Conservation measures provided to species listed as endangered or threatened under the Endangered Species Act include recognition, recovery actions, requirements for Federal protection, and prohibitions against certain activities. Recognition through listing encourages and results in conservation actions by Federal, State, and private agencies, groups, and individuals. The Act provides for possible land acquisition and cooperation with the States and requires that recovery actions be carried out for all listed species. The protection required of Federal agencies and the prohibitions against certain activities involving listed plants are discussed, in part, below.

Section 7(a) of the Act, as amended, requires Federal agencies to evaluate their actions with respect to any species that is proposed or listed as endangered or threatened, and with respect to its critical habitat, if any is being designated. Regulations implementing this interagency cooperation provision of the Act are codified at 50 CFR part 402. Section 7(a)(2) of the Act requires Federal agencies to ensure that activities they authorize, fund, or carry out are not likely to jeopardize the continued existence of a listed species or to destroy or adversely modify its critical habitat. If a Federal action may affect a listed species or its critical habitat, the responsible Federal agency must enter into formal consultation with the Service.

One population of *Cyanea superba* is located on the Makua Military Reservation under the jurisdiction of the U.S. Army. The military uses portions of this area for ordnance training of its troops and provides a buffer zone adjacent to the impact area. Entry into the buffer area is forbidden to prevent injury from stray or unexploded shells or other devices (H. Messier, pers. comm., 1990). *Cyanea superba* is present only in the buffer zone and, therefore, is not directly affected by military activities. The Army has constructed

firebreaks on the Makua Military Reservation to minimize damage from unintentional fires that occasionally result from stray bullets (H. Messier, pers. comm., 1990). If the species is listed as endangered, the Department of Defense would be required to enter into consultation with the Service before undertaking, funding, or permitting any action that may affect the plants.

The Act and its implementing regulations found at 50 CFR 17.61, 17.62, and 17.63, set forth a series of general trade prohibitions and exceptions that apply to all endangered plants. With respect to *Cyanea superba*, all trade prohibitions of section 9(a)(2) of the Act, implemented by 50 CFR 17.61, apply. These prohibitions, in part, make it illegal with respect to any endangered plant for any person subject to the jurisdiction of the United States to import or export; transport in interstate or foreign commerce in the course of a commercial activity; sell or offer for sale this species in interstate or foreign commerce; or to remove and reduce to possession any such species from areas under Federal jurisdiction; maliciously damage or destroy any such species on any area under Federal jurisdiction; or remove, cut, dig up, or damage or destroy listed plants on any other area in knowing violation of any State law or regulation or in the course of any violation of a State criminal trespass law. Certain exceptions apply to agents of the Service and State conservation agencies. The Act and 50 CFR 17.62 and 17.63 also provide for the issuance of permits to carry out otherwise prohibited activities involving endangered plant species under certain circumstances.

It is anticipated that few, if any, trade permits would ever be sought or issued for this plant, because the species is not common in cultivation nor in the wild. Requests for copies of the regulations on plants and inquiries regarding them may be addressed to the Office of Management Authority, U.S. Fish and Wildlife Service, 4401 North Fairfax Drive, room 432-ARLSQ, Arlington, Virginia 22203-3507 (703/358-2104; FTS 921-2104; FAX 703/358-2281).

#### National Environmental Policy Act

The Fish and Wildlife Service has determined that an Environmental Assessment or Environmental Impact Statement, as defined under the authority of the National Environmental Policy Act of 1969, need not be prepared in connection with regulations adopted pursuant to section 4(a) of the Endangered Species Act of 1973, as amended. A notice outlining the Service's reasons for this determination

was published in the Federal Register on October 25, 1983 (48 FR 49244).

#### References Cited

- Chamisso, L.A. von. 1833. Lobeliaceae: in Chamisso, L.A. von, and D.F.L. von Schlechtendal, De plantis in expeditione speculatoria Romanoffiana observatis. Linnaea 8:201-223.
- Gray, A. 1861. Notes on Lobeliaceae, Goodeniaceae, &c. of the collection of the U.S. South Pacific Exploring Expedition. Proc. Amer. Acad. Arts 5:146-152.
- Hawaii Heritage Program. 1989. Element Occurrence Records for *Cyanea superba*, PDCAM042C1.004, PDCAM042C1.006, and PDCAM042C1.009, dated June 8-9, 1989. Honolulu. Unpubl. 5 pp.
- Hawaii Natural Area Reserves System. 1988. Plant survey of the Pahole Natural Area Reserve. Rep. no. 2, May 1988. Division of Forestry and Wildlife, Department of Land and Natural Resources, Honolulu, Hawaii. Unpubl.
- Lammers, T.G. 1990. Campanulaceae: in Wagner, W.L., D.R. Herbst, and S.H. Sohmer, Manual of the flowering plants of Hawaii. University of Hawaii Press and Bishop Museum Press, Honolulu, pp. 420-489.
- Obata, J.K., and C.W. Smith. 1981. Unpublished status survey of *Cyanea superba*. U.S. Fish and Wildlife Service, Honolulu. Unpubl. 31 pp.

#### Author

The primary author of this final rule is Dr. Derral R. Herbst, Fish and Wildlife Enhancement, Pacific Islands Office, U.S. Fish and Wildlife Service, 300 Ala Moana Boulevard, room 6307, P.O. Box 50167, Honolulu, Hawaii 96850 (808/541-2749 or FTS 551-2749).

#### List of Subjects in 50 CFR Part 17

Endangered and threatened species, Exports, Imports, Reporting and recordkeeping requirements, and Transportation.

#### Regulation Promulgation

#### PART 17—[AMENDED]

Accordingly, part 17, subchapter B of chapter I, title 50 of the Code of Federal Regulations, is amended as set forth below:

1. The authority citation for part 17 continues to read as follows:

Authority: 16 U.S.C. 1361-1407; 16 U.S.C. 1531-1544; 16 U.S.C. 4201-4245; Pub. L. 99-625, 100 Stat. 3500; unless otherwise noted.

2. Amend § 17.12(h) by adding the following, in alphabetical order under the family Campanulaceae, to the List of Endangered and Threatened Plants:

#### § 17.12 Endangered and threatened plants.

\* \* \* \* \*

(h) \* \* \*

Species		Historic range	Status	When listed	Critical habitat	Special rules
Scientific name	Common name					
Campanulaceae—Bellflower family:						
Cyanea superba	None	U.S.A. (HI)	E	434	NA	NA

Dated: August 20, 1991.

**Richard N. Smith,**

*Acting Director, Fish and Wildlife Service.*

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